



JUL 08 2008

10CFR50.73

LR-N08- 0146

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington DC 20555-001

Salem Nuclear Generating Station Unit 2
Facility Operating License No. DPR-75
NRC Docket No. 50-311

SUBJECT: Salem Unit 2 Manual Reactor Trip Due to High Level on 23 Steam
Generator

This Licensee Event Report (LER) number 311/2008-002 "Salem Unit 2 Manual Reactor Trip Due to High Level on 23 Steam Generator" is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR50.73(a)(2)(iv)(A).

The attached LER contains no commitments. Should you have any questions or comments regarding this submittal, please contact Mr. E. H. Villar at 856-339-5456.

Sincerely,

A handwritten signature in black ink, appearing to be "R. Braun", written over a horizontal line.

Robert Braun
Site Vice President - Salem

Attachments (1)

IES2
WPR

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cc Mr. S. Collins, Administrator - Region I
 U. S. Nuclear Regulatory Commission
 475 Allendale Road
 King of Prussia, PA 19406

 Mr. R. Ennis, Licensing Project Manager - Salem
 U. S. Nuclear Regulatory Commission
 Mail Stop 08B1
 Washington, DC 20555-0001

 USNRC Senior Resident Inspector - Salem (X24)

 Mr. P. Mulligan, Manager IV
 Bureau of Nuclear Engineering
 PO Box 415
 Trenton, NJ 08625

LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollect@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Salem Generating Station - Unit 2	2. DOCKET NUMBER 05000311	3. PAGE 1 of 4
4. TITLE Salem Unit 2 Manual Reactor Trip Due to High Level on 23 Steam Generator		

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED																																					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER																																				
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9. OPERATING MODE 1			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)																																											
10. POWER LEVEL 25%			<table border="0"><tr><td><input type="checkbox"/> 20.2201(b)</td><td><input type="checkbox"/> 20.2203(a)(3)(i)</td><td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td><td><input type="checkbox"/> 50.73(a)(2)(vii)</td></tr><tr><td><input type="checkbox"/> 20.2201(d)</td><td><input type="checkbox"/> 20.2203(a)(3)(ii)</td><td><input type="checkbox"/> 50.73(a)(2)(ii)(A)</td><td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td></tr><tr><td><input type="checkbox"/> 20.2203(a)(1)</td><td><input type="checkbox"/> 20.2203(a)(4)</td><td><input type="checkbox"/> 50.73(a)(2)(ii)(B)</td><td><input type="checkbox"/> 50.73(a)(2)(vii)(B)</td></tr><tr><td><input type="checkbox"/> 20.2203(a)(2)(i)</td><td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td><td><input type="checkbox"/> 50.73(a)(2)(iii)</td><td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td></tr><tr><td><input type="checkbox"/> 20.2203(a)(2)(ii)</td><td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td><td><input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)</td><td><input type="checkbox"/> 50.73(a)(2)(x)</td></tr><tr><td><input type="checkbox"/> 20.2203(a)(2)(iii)</td><td><input type="checkbox"/> 50.36(c)(2)</td><td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td><td><input type="checkbox"/> 73.71(a)(4)</td></tr><tr><td><input type="checkbox"/> 20.2203(a)(2)(iv)</td><td><input type="checkbox"/> 50.46(a)(3)(ii)</td><td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td><td><input type="checkbox"/> 73.71(a)(5)</td></tr><tr><td><input type="checkbox"/> 20.2203(a)(2)(v)</td><td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td><td><input type="checkbox"/> 50.73(a)(2)(v)(C)</td><td><input type="checkbox"/> OTHER</td></tr><tr><td><input type="checkbox"/> 20.2203(a)(2)(vi)</td><td><input type="checkbox"/> 50.73(a)(2)(i)(B)</td><td><input type="checkbox"/> 50.73(a)(2)(v)(D)</td><td></td></tr></table> <p>Specify in Abstract below or in NRC Form 366A</p>								<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	
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12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME Enrique Villar, Regulatory Compliance Engineer	TELEPHONE NUMBER (Include Area Code) (856) 339 -5456
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	JB		W120	Yes					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On May 9, 2008, Salem Unit 2 was at approximately 47% power and ramping up to 100% following its sixteenth (2R16) refueling outage. At 09:44 the Salem Unit 2 control room observed that there was no power to the circulating water traveling screens. A power reduction was initiated in accordance with operating procedures. Shortly following the removal of the main turbine from service, at approximately 25% power, control room personnel noticed the main feedwater regulating valve (23BF19) had swapped to manual and 23 Steam Generator level was increasing. With the regulating valve in manual control and level in the Steam Generator rising, the Unit 2 reactor was ordered tripped at 10:59. The cause for the 23BF19 swapping to manual shortly after the turbine trip was determined to be the result of the 23 Steam Generator steam flow input signals decreasing (spiking) to below the low sensor limit. The steam flow signal spike was caused by a pressure wave initiated from the main turbine stop valves closing as a result of the manually initiated turbine trip. Corrective actions included restoring power to the circulating water screens, and PSEG will revise the Unit 1 and 2 ADCFS low sensor limits (for DP transmitters) to consider the lowest possible output that can be experienced.

This report is being made in accordance with 10CFR50.73(a)(2)(iv)(A), "any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B)...."

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NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

Westinghouse -- Pressurized Water Reactor (PWR/4)

Feedwater/Steam Generator Water Level Control {JB/FCV}

Circulating Water Structures (CW) {MN/SCN}

* Energy Industry Identification System {EIS} codes and component function identifier codes appear as {SS/CCC}

IDENTIFICATION OF OCCURRENCE

Event Date: May 9, 2008

Discovery Date: May 9, 2008

CONDITIONS PRIOR TO OCCURRENCE

Salem Unit 2 was in Operational Mode 1 at 47% reactor power.

No additional structures, systems or components were inoperable at the time that contributed to the event.

DESCRIPTION OF OCCURRENCE

On May 9, 2008, Salem Unit 2 was at approximately 47% power and ramping up to 100% following the sixteenth (2R16) refueling outage. Power was stable for axial flux distribution and quadrant power tilt ratio surveillance testing.

At 09:44 the Salem Unit 2 control room Overhead Annunciators (OHA) K-1, "Screen Wash Trouble" and K-9, "21-23 Circulating Water Screen Wash Trouble" alarmed, and control room personnel observed that there was no indication of circulating water (CW) traveling screens {MN/SCN} running on the 2RP5 control room panel. As a result of the loss of power to the CW traveling screens, a power reduction was initiated, and at 10:56 the main turbine was removed from service at approximately 25% power.

Simultaneous with the turbine trip, OHAs G-15, "ADFCS Trouble" and G-7, [Automatic Digital Feedwater Control System] "ADFCS Switch to Manual" illuminated. Shortly following the alarms, 23 Steam Generator (SG) high level was observed by control room personnel due to the main feedwater regulating valve (23BF19) swapping to manual. With the regulating valve in manual control and level in the SG rising, the Unit 2 reactor was ordered tripped at 10:59. All safety systems responded as designed and the unit was stabilized in Mode 3.

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NARRATIVE

DESCRIPTION OF OCCURRENCE (cont'd)

This report is being made in accordance with 10CFR50.73 (a) (2) (iv) (A), any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B).

CAUSE OF OCCURRENCE

The loss of power to the CW traveling screens that resulted in the initial plant power reduction was due to water intrusion into the electrical control panel during a period of heavy rain. Water entered the panel through a leaking seal at a conduit penetration on the top of the panel, wetting electrical equipment and resulting in the main infeed breaker tripping. The panel is normally sheltered from the environment by the circulating water structure roof; however, this section of roofing had been removed for maintenance on the 23B circulator motor.

The reactor was manually tripped due to the rising level in the 23 steam generator following the swap of the main feedwater regulating valve 23BF19 to manual. The cause for the main feedwater regulating valve swapping to manual was determined to be the result of the 23 Steam Generator steam flow input signals decreasing (spiking) to below their predetermined low sensor limit. The steam flow signal spike was caused by a pressure wave initiated from the main turbine stop valves closing when the turbine was manually trip per procedure.

PREVIOUS OCCURRENCES

Salem Generating Station LERs and internal Operating Experience for years 2008 back to 2005 were reviewed for similar occurrences of a manual reactor trip generated due to increasing steam generator water level. None were noted.

SAFETY CONSEQUENCES AND IMPLICATIONS

There were no safety consequences associated with this event.

The failure that resulted in the swapping of the feedwater control valve to manual for the 23 Steam generator would not have prevented the valve from closing upon demand if requested by a safeguard actuation. Even if conservatively assuming that the feedwater control valve would not have closed upon demand, the affected penetration would have been isolated by other valves, including the containment isolation valve 23BF22.

A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02, Regulatory Assessment Performance Indicator Guidelines, did not occur. This event did not prevent the ability of a system to fulfill its safety function to either shutdown the reactor, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident.

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NARRATIVE

CORRECTIVE ACTIONS

1. The cracked insulation at the conduit penetration in the circulating water panel was repaired and a temporary shelter was constructed over the panel to protect the panel from the environment while the circulating water roof was removed.
2. The redundant Unit 1 panel was inspected. All conduit and Unit 1 DP-1 panel penetrations have been resealed.
3. PSEG will revise the Unit 1 and 2 ADCFS low sensor limits (for DP transmitters) to consider the lowest possible output that could be experienced.

COMMITMENTS

No commitments are made in this LER.